

REMARKS

Applicants wish to thank the Examiner for considering the present application. Claims 1-10, 12-15 are rejected in the application. The allowability of claim 11, if rewritten in independent form, is acknowledged. Applicants respectfully request the Examiner for a reconsideration of the rejections.

ALLOWABLE SUBJECT MATTER

The Examiner states that claim 11 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 11 is allowed with the same reasons set forth in the previous Office Action (paper mailed on 9-13-06).

REJECTION UNDER 35 U.S.C. § 103

Claims 1-10 and 12-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Olds (U.S. Pat. No. 5,732,351) in view of Hart (U.S. Pub. No. 2002/0132579), further in view of Grybos (U.S. Patent No. 5,926,758). This rejection is respectfully traversed.

Claim 1 recites a plurality of satellites forming a coordinatable system of geostationary satellite orbits that provides satellite coverage continuously within a specified service area. The claim further recites a fixed tiling pattern for use in the surface of the Earth, said tiling pattern having a plurality of cells corresponding to the plurality of beams, each of said cells having a defined frequency for communication and a frequency reuse spacing, wherein at least one beam forms from a first of the plurality of satellites is directed to and coextensive with a group of cells formed from a second of the plurality of satellites. The claim also includes that at least one beam

has a different frequency than each corresponding cell from the group of cells formed from the second of the plurality of satellites.

The Olds reference is cited for teaching geostationary satellites. Although geostationary satellites are set forth in column 4, the Olds reference is suited for medium and low Earth orbit applications. Applicants admit that a tiling pattern is illustrated in Figure 2 of the Olds reference. However, the Olds reference appears to avoid interference by intentionally directing beams from different satellites to different cells. Claim 1 seeks to provide different coverage using different frequencies to the same cell from different satellites. This is in sharp contrast to the Olds reference. The Examiner then states that the Olds reference does not mention at least one beam formed from a first of the plurality of satellites directed to a group of cells formed from a second of the plurality of satellites. Applicants agree. The Examiner then cites the Hart reference for these teachings.

The Examiner specifically refers to Figure 2 and Figures 7-9 in the Hart reference which correspond to page 4, section 63-63 and page 5, section 73-75 for teaching the plurality of satellites is directed to a group of cells formed from the different satellites. There are several differences from the Hart reference. First, claim 1 is directed to a geostationary satellite system. The Hart reference does not teach or suggest the use of satellites in a geostationary orbit. Another difference from the Hart reference is the use of different frequencies in the overlapping cells. The end of paragraph 64 of the Hart reference specifically mentions that, "the mobile terminal 18 is located within the footprint 50 of one spot beam of the satellite 4a and within the footprint 51 of a spot beam of the satellite 4b, so that communication is possible via either satellite." As described in the next several paragraphs, it appears that the same frequencies are assigned so that communication can take place using either of the satellites. This facilitates handover described in paragraphs 72 through 74. Handover is important when one satellite

moves from the view of the user terminal. The present claims use different frequencies for overlapping coverage. As an aside, the handover aspect illustrates the difference between a lower Earth orbit satellite and a geostationary Earth orbit satellite as recited in claim 1.

The Examiner then admits that the Olds and Hart references do not teach “at least one beam has a different frequency than each corresponding cell from the groups of cells formed from a second of the plurality of satellites.” The Examiner points to the Grybos reference for this teaching. In particular, the Examiner points to Figures 2A-2B, 3 and satellites A1, B1 being in different systems. The Examiner then points to column 9, lines 18-23 and lines 53-61. The Examiner also refers to column 10, lines 5-10. In column 7, the Grybos reference refers to a system for interference protection in lines 50-60. The Grybos reference states that interference protection may be used for geosynchronous satellites but primary applies to lower orbit satellites. The teaching set forth in column 9 specifically refers to the movement of satellites since a portion of their radio-beam footprints may overlap. Using two different frequencies is described in column 9, lines 19-22. This passage specifically refers to movement and overlapping over time. Likewise, column 9, lines 53-61 specifically state that overlapping visibility contours are not assigned the same frequency. The independent claims of the present application have been amended to recite that the tiling patterns are fixed. Thus, they do not move about as described in the Grybos reference. Also, when viewing Figure 2B, only a portion of the satellite signals overlap. The independent claims have also been amended to clarify that the group of cells and the beams directed thereto are coextensive. The cells do not partially overlap but are entirely the same cell and are thus coextensive. The present claims are specifically directed to geostationary-type satellites so that the tiling pattern is fixed on the surface of the Earth and that the same tiling pattern may be used by different satellites using different frequencies. Therefore, the Grybos reference appears to be specifically directed to moving satellites rather than geostationary

satellites. Although geostationary satellites are mentioned, there appears to be no fixed tiling pattern used by two different satellites. The satellites in the Grybos reference only partially overlap.

The passage in the Grybos reference in column 10, lines 5-10 specifically describes sharing of the same frequencies by timing transmissions from each satellite non-simultaneously. Therefore, the passage in column 10 appears not to apply to the present claims. Applicants therefore respectfully request the Examiner to reconsider the rejection of claim 1.

Claims 2 through 10 are believed to be allowable for the same reasons set forth above with respect to claim 1.

Claims 12 and 13 recite regularly distributed rings. The Examiner points to Olds, Figure 2, for a distributed cell ring. However, Applicants can find no teaching or suggestion in the Olds reference for a distributed cell ring. The Examiner also points to column 4, lines 10-15 of the Olds reference for this teaching. However, this passage also does not teach or suggest regularly distributed rings. Applicants respectfully request the Examiner to reconsider this rejection as well.

Claims 14 and 15 are independent claims that have been amended in a similar manner to that described above with respect to claim 1. Claims 14 and 15 do not recite the geostationary orbits but recite different frequency use in the same cells that originate from different satellites. As mentioned above, these features are not taught or suggested in either the Olds or the Hart references. Therefore, claims 14 and 15 are also believed to be allowable for the same reasons set forth above.

CONCLUSION

In light of the remarks above, Applicants submit that all objections and rejections are now overcome. The application is now in condition for allowance and expeditious notice thereof is earnestly solicited. Should the Examiner have any questions or comments, the Examiner is respectfully requested to contact the undersigned attorney.

Should any fees be associated with this submission, please charge Deposit Account 50-0383.

Respectfully submitted,

Dated: November 6, 2007

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